

PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

To:

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PCT

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

(PCT Rule 43bis.1)

Date of mailing
(day/month/year) **29 NOVEMBER 2005 (29.11.2005)**

Applicant's or agent's file reference
IPN28854

FOR FURTHER ACTION

See paragraph 2 below

International application No.

PCT/KR2005/003065

International filing date (day/month/year)

15 SEPTEMBER 2005 (15.09.2005)

Priority date(day/month/year)

19 NOVEMBER 2004 (19.11.2004)

International Patent Classification (IPC) or both national classification and IPC

IPC7 B04B 5/02

Applicant

HANLAB CORPORATION et al

1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☐ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☐ Box No. VII Certain defects in the international application
- ☐ Box No. VIII Certain observations on the international application

2. **FURTHER ACTION**

If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1 bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.
For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

Name and mailing address of the ISA/KR



Korean Intellectual Property Office
920 Dunsan-dong, Seo-gu, Daejeon
302-701, Republic of Korea

Facsimile No. 82-42-472-7140

Date of completion of this opinion

29 NOVEMBER 2005 (29.11.2005)

Authorized officer

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**WRITTEN OPINION OF THE
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International application No.

PCT/KR2005/003065

Box No. I Basis of this opinion

1. With regard to the **language**, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ This opinion has been established on the basis of a translation from the original language into the following language _____, which is the language of a translation furnished for the purposes of international search (under Rules 12.3 and 23.1(b)).
2. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:
 - a. type of material
☐ a sequence listing
☐ table(s) related to the sequence listing
 - b. format of material
☐ on paper
☐ in electronic form
 - c. time of filing/furnishing
☐ contained in the international application as filed.
☐ filed together with the international application in electronic form.
☐ furnished subsequently to this Authority for the purposes of search.
3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
4. Additional comments:

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**Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability;
citations and explanations supporting such statement**

1. Statement

Novelty (N)	Claims	1-9	YES
	Claims	None	NO
Inventive step (IS)	Claims	1-9	YES
	Claims	None	NO
Industrial applicability (IA)	Claims	1-9	YES
	Claims	None	NO

2. Citations and explanations :

Reference is made to the following documents:

D1: WO 02/083317 A1
D2: US 4671940
D3: US 6589789 B1
D4: WO 03/000380 A1
D5: JP 02657184 B2

Document D1 shows a centrifugal machine of automatic balance type for detecting an imbalance in a specimen mounted on a rotor lever before every centrifugal machining, and for moving horizontally the rotor lever according to detected results, maintaining automatic balance.

Document D2 pertains to a centrifugal apparatus, which includes a counterweight means on a rotating plate of the apparatus to automatically balance the rotating plate wherein the counterweight means is displaced in response to centrifugal force and can automatically adjust for the weight, mass or absence of a sample placed in a holding means. A notch attached on spring which locks the counterweight means will be loosened by the centrifugal force of the sample located in the corresponding side.

Document D3 concerns an automated device for loading a centrifuge where tubes are presented to the centrifuge via an automated routing system. An automated robot arm places the filled or partially filled, balanced paired tubes into the centrifuge adaptor located in the opposite each other. The weight of a tube is estimated from its height and diameter. In this way, the opposing adaptor will weigh the same within the fault limit of the centrifuge.

Document D4 discloses an automated blood separation method and apparatus that allows for simultaneous separation of multiple units of whole blood into its components. An auto-balancing feature within the centrifugal apparatus automatically compensates for a changing state of imbalance. A cassette, which contains a whole blood bag, red blood cell bag, platelet concentrate bag and platelet poor plasma bag is designed to balance the fluids inside within the cassette, between cassettes, or both. If a bag must be placed off-center, any two adjacent cassettes with the same configuration can be mounted 180 degree out of phase from the other cassette for the pair to remain balanced.

Document D5 provides a hydraulic automatic balancer which eliminates any residue in a pocket forcibly as well as make highly accurate balancing work performable by setting up a liquid injection nozzle for injecting a liquid in the specific phase pocket and correcting any unbalance in a rotor, and an air injection nozzle for exhausting the liquid in the pocket to the outside, respectively. The specified magnitude of weight acts on the specified phase of the rotor, so that any unbalance in the rotor is automatically corrected.

(Continued on the Supplemental Box.)

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Supplemental Box

In case the space in any of the preceding boxes is not sufficient.

Continuation of :

Box No. V

1) Novelty and Inventive Step

The present invention relates to an automatic balancing centrifugal apparatus by fluid compensation which is capable of compensating a load unbalance among buckets holding samples by injecting a fluid into the buckets or sucking the fluid out of the buckets. The weight of the each bucket is measured on the loading plate installed so as to be positioned right below the rotation trace of the buckets. The weight of each bucket is compensated based on the corresponding heaviest bucket.

None of D1-D5 discloses or teaches the automatic balancing centrifugal apparatus by fluid compensation. Fluid compensation in D5 is applied to the grinding machine. The present centrifugal apparatus does not shift the rotor or rotating arms, which simplify the overall structure and increases the durability of the system. Therefore, the claimed invention is novel and inventive, which meets the requirement of PCT Article 33(2) and 33(3).

2) Industrial Applicability

The subject matter of claims 1 to 9 is considered to be industrially applicable, which meets the requirement of PCT Article 33(4).